



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1459
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,666	11/20/2001	Hans Hallen	003300-870	9034
7590 12/22/2003				
Benton S. Duffett, Jr. BURNS, DOANE, SWECKER & MATHIS, L.L.P. P.O. Box 1404 Alexandria, VA 22313-1404			EXAMINER OLTMANS, ANDREW L	
			ART UNIT 1742	PAPER NUMBER

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/988,666

Applicant(s)

HALLEN ET AL.

Examiner

Andrew L Oltmans

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 and 15-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-14, 19 and 21-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-19 and 21-30 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. This application contains claims 1-11 and 15-18 drawn to an invention nonelected with traverse in Paper No. 8, filed April 8, 2003. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Objections

2. Applicant is advised that should claim 22 be found allowable, claim 25 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 28 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that

the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicant has added the limitation "free of molybdenum" in claim 28 and points to the examples as support for the amendment. The examiner notes that the examples merely show examples that do not have molybdenum. There is no explicit support for the limitation, nor is Mo positively recited in a list in which it may be omitted. The mere absence of a limitation alone in the specification is insufficient to provide support for a negative limitation, see MPEP 2173.05(i).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Shepard 2,936,229 in view of DuBois 5,234,510

6. Claims 12-14, 19, 21-26 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shepard 2,936,229 (Shepard) in view of DuBois 5,234,510 (DuBois; cited on IDS filed November 20, 2001).

Shepard teaches a spray weld process wherein a ferrous metal substrate is sprayed with a powder, heated and atomized (col 1, lines 37-59; col 4, lines 48-58; col 6, lines 19-36) wherein the nickel-based powder composition comprises concentrations of nickel, copper, iron, carbide forming element, boron, silicon and carbon that overlap the instantly claimed compositions, as instantly claimed in claims 12-14, 19, 21-26 and 28-30 (col 2):

Art Unit: 1742

Some other spray-weld alloys of the boron, nickel type, which have been found suitable for the spray-weld process, are listed in the following table, the amounts indicating percent by weight:

20

TABLE

Si	1-6	4-5	4-5	4-5	3.5-4.5
B	1-6	3.5-4.5	3.5-4.5	3.5-4.5	3.75-3.75
Cu	0-8	5-8	5-8	5-8	5-8
Mo	0-10	4.5-5.5	4.5-5.5	4.5-5.5	4.5-5.5
Cr	0-20		8-12	15-18	15-18
C	0-1	0-0.2	0-0.2	0-0.2	0.7-1
Fe	0-5	0-5	0-5	0-5	0-5
Balance in all cases Ni					

30

Shepard fails to meet all the limitations of the instant claims in that Shepard does not explicitly teach the exact compositional ranges or the inclusion of phosphorous.

DuBois teaches that the inclusion of 0.5-4.5% phosphorous (col 2, line 29) in nickel-based powder coating compositions for ferrous metal substrates provides various advantages (col 2 - col 3):

65 The use of phosphorous in the present invention in the ranges cited is critical to provide the novel surfacing alloys of the present invention. The phosphorous utilized in the present invention may be in the form of a

and,

Art Unit: 1742

BNI-6 braze material such as a Wall Colmonoy, Nicrobraz[®] 10 constituent which includes a nominal composition of 11% phosphorous, a maximum of 0.06% carbon and with the balance being nickel. The phosphorous content of the present invention provides an initial low melt phase to the present alloy composition which improves the property of cold wetting of substrates such as aluminum bronze and cast iron. The phosphorous also acts as a flux in the present invention. The phosphorous is a critical constituent of the present invention in that it substantially eliminates the formation of boro silicates in the final surfacing coating when formed on a substrate. Without wishing to be bound by theory, it is believed that the phosphorous, having a greater affinity for oxygen than either silicon or boron, acts to inhibit the formation of oxides of silicon and boron which are the predecessors of the boro silicates. Thus, by the addition of phosphorous in the ranges recited undesirable boro silicate formation is substantially reduced.

With respect to the concentration of the nickel-based alloy composition, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the alloy taught by the reference has a composition which overlaps that of the instant claims, In re Peterson, 65 USPQ2d 1379, In re Malagari, 182 USPQ 549, and MPEP 2144.05.

With respect to the inclusion of phosphorous in the composition, one of ordinary skill in the art at the time that the invention was made would have found the inclusion of phosphorous into the composition of Shepard obvious because one of ordinary skill would have been motivated to provide Shepard with the desirable properties from phosphorous taught by DuBois, including initial low melt phase, improved cold wetting for cast iron (as claimed in claim 12), action as a flux, and substantial elimination of undesirable borosilicates (DuBois: col 3, lines 5-20).

Art Unit: 1742

Tour 2,875,043 in view of DuBois 5,234,510

7. Claims 12-14, 19, 21-27 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tour 2,875,043 (Tour) in view of DuBois 5,234,510 (DuBois; cited on IDS filed November 20, 2001).

Tour teaches a spray weld process wherein a ferrous metal substrate is sprayed with a powder, heated and atomized (col 1, lines 34-59; col 5, lines 23-40) wherein the nickel-based powder composition comprises concentrations of nickel, copper, iron, carbide forming element, boron, silicon and carbon that overlap the instantly claimed compositions, as instantly claimed in claims 12-14, 19, 21-27 and 29-30 (col 3):

Spray-welding alloys in accordance with the invention may thus comprise Si: 1-6% and preferably 4-5%; B: 1-6% and preferably 3.5-4.5%; Cr: 0-20%; Cu: 3-8% and preferably 5-6%; Mo: 3-10% and preferably 4.5-5.5%; balance Ni plus impurities. What has been said above in connection with the prior art alloys of the boron-silicon-nickel type regarding impurities and/or additives and especially carbon and free iron, applies equally to the alloys in accordance with the invention.

Typical component ranges of alloys in accordance with the invention are exemplified in the following table:

TABLE

56

Si	1-6	4-5	4-5	4-5	3.5-4.5
B	1-6	3.5-4.5	3.5-4.5	3.5-4.5	2.75-3.75
Cu	3-8	5-6	5-6	5-6	5-6
Mo	3-10	4.5-5.5	4.5-5.5	4.5-5.5	4.5-5.5
Cr	0-20	8-12	15-18	15-18	15-18
Fe	0-1	0-0.2	0-0.2	0-0.2	0.7-1
Fe	0-5	0-5	0-5	0-5	0-5

60

Balance in all cases Ni.

Tour fails to meet all the limitations of the instant claims in that Tour does not explicitly teach the exact compositional ranges or the inclusion of phosphorous.

DuBois teaches as set forth in paragraph 6, above.

With respect to the concentration of the nickel-based alloy composition, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the alloy taught by the reference has a composition which overlaps that of the instant claims, In re Peterson, 65 USPQ2d 1379, In re Malagari, 182 USPQ 549, and MPEP 2144.05.

With respect to the inclusion of phosphorous in the composition, one of ordinary skill in the art at the time that the invention was made would have found the inclusion of phosphorous into the composition of Tour obvious because one of ordinary skill would have been motivated to provide Tour with the desirable properties from phosphorous taught by DuBois, including initial low melt phase, improved cold wetting for cast iron (as claimed in claim 12), action as a flux, and substantial elimination of undesirable borosilicates (DuBois: col 3, lines 5-20).

Response to Arguments

8. Applicant's arguments filed October 6, 2003 have been fully considered but they are not persuasive. Claims 1-19 and 21-30 remain pending in this application. Claims 1-11 and 15-18 have been withdrawn for being drawn to a non-elected invention. The rejections made in the previous Office Action have been maintained and have been applied, as appropriate, to the newly presented claims 21-30.

9. With respect to applicant's argument that Shepard fails to teach the composition instantly claimed (page 9-10 of applicant's response), the argument is not found persuasive. The examiner maintains that the composition taught in the Table (i.e. upper Table) in col 2 of Shepard teaches a composition that overlaps the composition instantly claimed. The applicant

points to col 2-4 of the Table, but the examiner notes that at least col 1 teaches the overlapping composition, see MPEP 2144.05. The teachings of Shepard are not limited to the compositions in col 2-4 of the Table. Therefore, applicant's argument is not found persuasive.

10. With respect to applicant's argument that the reference teaches away from the claimed composition (page 10 of applicant's response), the argument is not found persuasive. Although the composition in the table is cited as having some defects, col 3, lines 58-63 recites that it is the compositions in the Tables that is used, wherein aluminum is added to that composition. It is noted that aluminum is not precluded from the composition instantly claimed because the claims use an open transitional phrase, see MPEP 2111.03. Therefore, the applicant's argument is not found persuasive.

11. With respect to applicant's argument that one of ordinary skill in the art would not find the combination of Shepard and DuBois obvious because there is no motivation (pages 10-12 of applicant's response), the argument is not found persuasive. The examiner maintains that one of ordinary skill in the art would have been motivated for the reasons set forth in the previous Office Action (paragraph 6):

With respect to the inclusion of phosphorous in the composition, one of ordinary skill in the art at the time that the invention was made would have found the inclusion of phosphorous into the composition of Shepard obvious because one of ordinary skill would have been motivated to provide Shepard with the desirable properties from phosphorous taught by DuBois, including initial low melt phase, improved cold wetting for cast iron (as claimed in claim 12), action as a flux, and substantial elimination of undesirable borosilicates (DuBois: col 3, lines 5-20).

The applicant argues that the broad ranges of DuBois are critical to the invention taught therein and therefore fails to suggest the use of phosphorous in the alloys of Shepard. The argument is not persuasive because the criticality mentioned in DuBois does not preclude the ingredients in Shepard, but rather requires the elements disclosed therein to get the beneficial results such as low melt phase, improved cold wetting for cast iron (as claimed in claim 12), action as a flux, and substantial elimination of undesirable borosilicates. One of ordinary skill in the art would find the beneficial results desirable for the alloys of Shepard. It is further noted that the nickel alloy to which the phosphorous is added can be any number of known nickel sources (col 2, lines 36-37). Therefore, applicant's arguments are not found persuasive.

12. With respect to applicant's argument that Tour fails to teach the composition instantly claimed (page 12 of applicant's response), the argument is not found persuasive. The examiner maintains that the composition taught in the Table in col 3 of Tour teaches a composition that overlaps the composition instantly claimed. The applicant points to col 2-4 of the Table, but the examiner notes that at least col 1 teaches the overlapping composition, see MPEP 2144.05. The teachings of Tour are not limited to the compositions in col 2-4 of the Table. Likewise, applicant's citation of Tour's examples 1-4 is not persuasive because Tour is not limited to the preferred embodiments. Tour teaches an overlapping composition in the Table in col 3. Therefore, applicant's argument is not found persuasive.

13. With respect to applicant's argument that one of ordinary skill in the art would not find the combination of Tour and DuBois obvious because there is no motivation (page 13 of applicant's response), the argument is not found persuasive for substantially the same reasons set forth above in the explanation with respect to Shepard in view of DuBois (paragraph 11).

14. With respect to the newly presented claims, the rejections above have been amended to apply to the newly presented claims, as appropriate. Specifically, claim 26 has been rejected because both Shepard and Tour teach compositions that include chromium in an amount that overlaps the amount claimed. With respect to claim 27, a rejection over Shepard has not been applied because of Shepard's required inclusion of aluminum; however, a rejection over Tour has been maintained. With respect to claim 28, the claims have rejected over Shepard but not Tour because Mo is not required in Shepard and is required in Tour. With respect to claim 29, the claim has been rejected in view of both Shepard and Tour because the references teach a carbide forming agent being chromium and in an amount that overlaps the instant claims. Likewise, claim 30 has been rejected because the references teach a carbide forming agent in an amount that overlaps the amount instantly claimed.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

Application/Control Number: 09/988,666
Art Unit: 1742


Page 11

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L Oltmans whose telephone number is 703-308-2594. The examiner can normally be reached from 7:00 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 703-308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Andrew L. Oltmans
Patent Examiner
Art Unit 1742

Alo
December 16, 2003